

ABSTRACT OF THE DISCLOSURE

The present invention provides a cell culture medium and methods useful for determining levels of intracellular function of glutathione or cysteine, and for providing biochemical analysis of antioxidant function in human lymphocytes. The medium of the present invention comprises: a buffered, serum-free solution containing a carbohydrate selected from the group consisting of glucose and a compound biologically capable of producing glucose in the cells, a biologically usable form of pantothenic acid, choline or a biological usable form of a substance capable of producing choline in the cells, inorganic ions comprising chloride, phosphate, calcium, magnesium, potassium, sodium, and iron in a biologically utilizable form, deionized water, and a mitogen in an amount effective to stimulate the lymphocytes being assayed. In addition to the preceding ingredients, the medium effective for measuring glutathione concentration also contains L-Buthionine-[S.R.]-Sulfoximine. The medium effective for measuring cysteine concentration contains, in addition to the listed ingredients, N-Acetyl-L Cysteine and Cumene Hydroperoxide. The buffered, serum-free solution optimally has a pH from about 6.8 to 7.6, and is characterized by being effective to determine intracellular glutathione or cysteine contraction and to analyze biochemically antioxidant function of the lymphocytes. Also provided is a method of biochemically analyzing cellular antioxidant function and

glutathione or cysteine functions comprising the steps of: inoculating
the appropriate cell culture medium of the present invention with
lymphocytes from said individual; incubating the inoculated cell
culture medium; and comparing the response of the lymphocytes
5 with an average response of lymphocytes from a control group of
individuals.

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